



environmental consultants, inc.

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November 6, 2006

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Ms. Susan M. White  
Minerals Regulatory Program Coordinator  
Utah Division of Oil Gas and Mining  
P.O. Box 145801  
Salt Lake City, Utah 84114-5801

Re: Response to Division Letter and Comments of October 27, 2006; Brush Resources, Inc. (BRI), Topaz Mine, Juab County, Utah; M/023/003

Dear Ms. White:

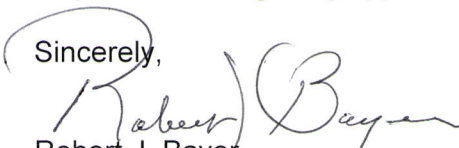
I am submitting this letter and the attached response on behalf of BRI and at their request. Responses are shown in italics and labeled "reply" on the attached version of the Division's comments. Accompanying the response document are the revised reclamation cost estimating spreadsheets. In addition, section 9.0 of the Mining and Reclamation Plan (MRP) has been revised to reflect minor changes in subsections 9.2.1 and 9.14. A copy of section 9.0 showing these changes in redline is attached.

Based upon conversations between Mr. Jensen and Mr. Bill Fuller of JBR, we believe that we understand and have satisfactorily addressed all of the Division's October 27, 2006 comments. Accordingly, we believe that the Division should now be in the position to grant tentative approval of BRI's Notice of Intent and MRP Amendment.

On behalf of BRI, I request that the Division expedite its issuance of a letter of tentative approval of BRI's Notice of Intent to Amend its Mining and Reclamation Plan for the Topaz Mine, Juab County, Utah; M/023/003. In the letter, please confirm the total amount of surety (which has been recalculated as \$1,362,000) so that BRI can immediately set about modifying its letter of credit and completing the Reclamation Contract for the Division's review and approval. As you are aware, BRI's schedule for commencing mining operations under the amended MRP has advanced due to market conditions and pre-stripping is currently scheduled to commence in early January 2007.

Please contact either Mr. John Wagner of BRI or me with any questions you may have regarding this letter or the accompanying documents. We would appreciate any such questions being raised by telephone and not through a formal exchange of letters. Your expedited response will be greatly appreciated.

Sincerely,



Robert J. Bayer  
Managing Principal

Cc: Alex Boulton, BRI  
John Wagner, BRI

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NOV 07 2006  
DIV. OF OIL, GAS & MINING

Fourth Review  
Page 1 of 2  
M/023/003  
October 27, 2006

**FOURTH REVIEW OF NOTICE OF INTENTION TO COMMENCE LARGE MINING  
OPERATIONS**

**Brush Resources, Inc.  
Topaz Mine**

**M/023/003  
October 27, 2006**

**R647-4-113 - Surety**

The Division does not agree with the rental rates used in calculating the surety for this project. The following are the rates used by the Division; these costs are from the Rental Rate Blue Book, Second Half 2006 and Means Heavy Construction Data, 2006 version.

D9 dozer – w/operator	\$323.13/hr - Rental Rate Blue Book (pg 9-50). Labor rate from Means -Crew 10B – Equip Op (med) hourly cost.
Cat 631G scraper – w/operator	\$380.25/hr – Rental Rate Blue Book, (pg 9-47). Labor rate from Means– Crew 10B – Equip op (med) hourly cost.
Cat 992G loader – w/operator	\$530.80/hr – Rental Rate Blue Book, (pg 9-34). Labor rate from Means - Crew 10B- Equip Op (med) hourly cost.
8 cu yd dump truck – w/operator	\$89.15/hr – Rental Rate Blue Book, (pg 20-11) Labor rate from Means – Crew B-34B- Truck Driver (heavy)

REPLY – *The Rental Rate Blue Book and Means Heavy Construction Data rates have been incorporated in the cost estimate, resulting in a revised reclamation cost estimate.*

Equipment Mob/Demob shows the mobilization of a backhoe that is not shown on the equipment hourly rate portion of the estimate.

Please indicate the size of this backhoe for surety calculation purposes.

REPLY – *A backhoe with a hydraulic attachment was assumed to be used in the demolition component of the surety estimate. Demolition costs are derived from Means 2006.*

The Equipment Mob/Demob should show the mob/demob of the 992G loader.

REPLY - *This has been added to the Mob/Demob cost component.*



Fourth Review  
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M/023/003  
October 27, 2006

The estimate show that 121.6 acres of the area will be deep ripped but the revegetation section of the estimate only indicates that 107.6 acres will be seeded.

Please explain why the additional 14 acres deep ripped will not be seeded.

REPLY – *This has been corrected to show that 121.6 acres will be revegetated.*

The surety estimate indicates that the landfill area will be regraded, waste material placed and top soiled.

There is no indication that this area will be revegetated. Please explain why this 7.7 acre area is not scheduled to be revegetated.

REPLY - *The 7.7 acres has been added to the revegetation cost calculation.*

Please indicate where in the area there will be enough fine waste material that a self loading scraper will be able to load 62113 cy.

The surety calculation indicates that utilizing 631G scraper loads to be moved will be 34 cy. This scraper normally carries 24 cy (struck) to 34 cy (heaped) scraper, (using an average load of 29 cy). The scraper production rate should be adjusted to reflect this average loading rate.

REPLY – *Sufficient material is available immediately west of the landfill near the Roadside 2 backfilled area. The average load of 29 cy has been incorporated in the cost calculation.*

It will take 2141 trips to move 63,113 cu yds of waste material. The time allotted in the surety to move this material is 201.8 hours. This would seem to be an ambitious schedule considering the irregular sizes of the material to be moved. The Division feels that a cycle time of less than 6 minutes/load is not possible, considering the aggregate sizes of the material and the fact that the surface from which this material is removed is compacted. Please review this production rate.

REPLY – *All productivity factors were taken from the 36th edition of the Caterpillar Performance Handbook. Because of the proximity of the waste rock to the landfill, Brush submits that these factors are reasonable and prudent.*

Note: The use of a self-loading scraper to harvest rock from a dump which normally contains large rocks which could damage the auger on the scraper. If this scraper is to be used, another piece of equipment may be necessary to remove these larger rocks before the scraper attempts to load from this area. The use of a 637G scraper could be considered. This scraper has similar load rating to the 631G scraper but requires the use of a push dozer.

REPLY - *Brush is currently utilizing a self loading Cat 633 scraper (an older model not listed in the current Cat handbook). Using the 631 productivity numbers was a conservative estimate. The material was originally placed using this scraper. Reclamation work would just be reversing the process and is considered very feasible.*



RECLAMATION COST SUMMARY - EXISTING							Existing	Phase I
9.3	Facilities Demolition & Disposal						\$ 69,933	\$ -
9.4	Regrading & Recontouring						\$ 5,799	\$ 4,962
9.5	Ripping						\$ 52,075	\$ 53,488
9.6	Drainage Stabilization and Restoration			N/A				
9.7	Topsoil Replacement						\$ 150,426	\$ 118,455
9.8	Seedbed Preparation						\$ 54,720	\$ 106,785
9.9	Revegetation						\$ 103,198	\$ 194,898
9.10	Pit Highwall Safety Berms & Fences			N/A				
9.11	Miscellaneous - Land Fill Reclamation						\$ 116,998	\$ 8,000
9.12	RECLAMATION TOTAL						\$ 553,149	\$ 486,588
9.13	Reclamation Supervision(10% of Reclamation Total)						\$ 55,315	\$ 48,659
9.14	SUBTOTAL (1)						\$ 608,464	\$ 535,247
9.15	Contingency (10%)						\$ 60,846	\$ 53,525
9.16	SUBTOTAL (2)						\$ 669,310	\$ 588,771
9.17	Escalation (for 5 years at 1.6% per year)						\$ 55,285	\$ 48,633
9.18	GRAND TOTAL						\$ 724,595	\$ 637,404
	GRAND TOTAL ROUNDED						\$ 724,600	\$ 637,400

TOTAL RECLAMATION LIABILITY								
	Existing						\$ 724,600	
	Phase I						\$ 637,400	
	TOTAL						\$ 1,362,000	



9.3 Facilities Demolition & Disposal									
Metal Structures									
			unit cost				Cost		
volume(cuft)			(\$/cuft)						
60720			0.26				15787		
Means 2006 (02220-110-0012)									
Frame and Tin Structures									
			unit cost						
volume(cuft)			(\$/cuft)						
48900			0.28				13692		
Means 2006 (02220-110-0100)									
Pads									
6" area (sq ft)			\$/sq ft						
4134			5.60				23150		
Means 2006 (02220-130-0420)									
4" area (sq ft)			\$/sq ft						
2032			4.02				8169		
Means 2006 (02220-130-0280)									
Water Pipeline- 8" HDPE - 19,500 ft in length									
Assume D9 with operator and 2 persons on the ground to pull lengths									
to the landfill -- duration 18 hours									
			equip	for one	for three				
			labor	labor	labor				
total hrs			\$/hr	\$/hr	\$/hr				
18			267.73	55.40	166.20	7811			
Remove lining material (1) water pond loadout (10,000 sq ft) and (2)									
Fluro laydown pond (9300 sq ft). Assume two truck drivers and									
a 8 cu yd dump truck -- duration 10 hours									
			equip	for one	for two				
			labor	labor	labor				
total hrs			\$/hr	\$/hr	\$/hr				
10			45.85	43.30	86.60	1325			
TOTAL FACILITIES AND DISPOSAL									
69933									
9.4 Regrading & Recontouring									
Dump Top Rounding									
length (ft)			area(sq ft)	volume(cuyd)	production	total hrs	equip	labor	
12700			38	17874	996	17.9	267.73	55.40	5799
refer to Dump Top Rounding									
schematic for area cross									
section									
9.5 Ripping									
			area (ac)	production	total hrs	equip	labor		
			121.6	0.75	161.2	267.73	55.40	52075	
NOTE: ALL RIPPING ASSUMED DEEP									
9.6 Drainage Stabilization and Restoration									
N/A									



9.7	Topsoil Replacement								
		importing	volume		production		equip	labor	
		w/ scraper	(cuyd)		lcy/hr	total hrs	\$/hr	\$/hr	
			49045		139	353.8	324.85	55.40	134514
		spreading	volume		production		equip	labor	
		by dozer	(cuyd)		lcy/hr	total hrs	\$/hr	\$/hr	
			49045		996	49.2	267.73	55.40	15912
					TOTAL TOPSOIL REPLACEMENT				150426
9.8	Seedbed Preparation								
					fertilizing	manure			
			area (ac)		\$/ac	\$/ac			
			121.6		100	350			54720
					DOGM rate	DOGM rate			
9.9	Revegetation								
			landfill	application	seed cost				
	seed	area (ac)	area (ac)	\$/ac	\$/ac				
		121.6	7.7	240	192.00				55858
				DOGM rate	quote				
					production		equip	labor	
	dimpling	area (ac)			ac/hr	total hrs	\$/hr	\$/hr	
		121.6			0.83	146.5	267.73	55.40	47340
					TOTAL REVEGETATION				103198
9.10	Pit Highwall Safety Berms								
		length (ft)		NOTE: Safety berms are installed during initial phase of					
		0		of mining of a given pit. Berm construction is an					
				operational cost and not a reclamation cost.					
				The safety berms are a MSHA requirement					
9.11	Miscellaneous - Landfill Reclamation & Mob/Demob								
			volume		production		equip	labor	
			(cuyd)		lcy/hr	total hrs	\$/hr	\$/hr	
	grading		6211		996	6.2	267.73	55.40	2015
	waste rock		62113		263	236.5	324.85	55.40	89948
	top soil		6211		139	44.8	324.85	55.40	17036
				TOTAL LANDFILL RECLAMATION					108998
	Equip Mob/Demob								
		D9 dozer		2000					
		631 scraper		2000					
		backhoe		2000					
		8 cu yd truck		2000					
				TOTAL MOB/DEMOB					8000
				TOTAL MISCELLANEOUS					116998







[illegible]



<b>DOZING</b>							
Dump Top Rounding & Topsoil Spreading			Ripping			Seed Setting with D-9 pulling Dippler	
<b>D-9</b>	70' Push		<b>D-9</b>			<b>D-9</b>	
Production			Production				
Dozing distance	70		Ripper width (ft)	10.0		Dippler width (ft)	11.0
Maximum production(lcy/hr)	1600		Ripper penetration (ft)	2		speed (mi/hr)	1.00
			speed (mi/hr)	1.00			
Correction Factors			Maximum production(ac/hr)		1.21	Maximum production(ac/hr)	1.33
Operator	0.75		Correction Factors			Correction Factors	
efficiency (50 min/hr)	0.83		Operator	0.75		Operator	0.75
Total Correction Factor	0.623		efficiency (50 min/hr)	0.83		efficiency (50 min/hr)	0.83
Corrected Production			Total Correction Factor		0.623	Total Correction Factor	0.623
(lcy/hr)	996		Corrected Production		0.75	Corrected Production	0.83
			(ac/hr)			(ac/hr)	

<b>SCRAPERS</b>			
Top Soil Replacement			
Cat 631			
Capacity (cu yd)		29	
Average Haul Distance		4500	
Cycle Time			
Loading time (min)		0.9	
Spreading time (min)		0.7	
Loaded Haul time (min)	4% grade	2.8	
Empty Haul time (min)	4% grade	1.9	
Cycle Time (min)		6.3	
Cycles per Hour		9.6	
Production Rate (lcy/hr)		278	
Correction Factors			
Operator		0.75	
Job Efficiency(50 min/hr)		0.83	
Load Factor		0.8	
Total Correction Factor		0.50	
Corrected production rate(cy/hr)		139	

<b>SCRAPERS</b>			
Waste Rock Cap for Landfill			
Cat 631			
Capacity (cu yd)		29	
Average Haul Distance		1300	
Cycle Time			
Loading time (min)		0.9	
Spreading time (min)		0.7	
Loaded Haul time (min)	4% grade	1.0	
Empty Haul time (min)	4% grade	0.7	
Cycle Time (min)		3.3	
Cycles per Hour		18	
Production Rate (lcy/hr)		527	
Correction Factors			
Operator		0.75	
Job Efficiency(50 min/hr)		0.83	
Load Factor		0.8	
Total Correction Factor		0.50	
Corrected production rate(cy/hr)		263	



<b>Equipment Hourly Rates</b>					
Item					Total Hourly Cost
D9 Dozer					267.73
Cat 631 G Scraper					324.85
Cat 992G Loader					475.40
8 Cu Yd Dump Truck					45.85
Total Hourly Costs from Rental Rate Book, 2006 per DOGM comments					
<b>Labor Hourly Rates</b>					
Operator	Base	FICA 7.65%	Unemploy 3.00%	Wkmn Comp 12.30%	Total (\$)
Scraper					55.40
Dozer					55.40
Loader					55.40
Haul Truck					43.30
Base labor rates are from Means, 2006 per DOGM comments					
<b>Revegetation Seed Cost per Acre</b>					
Species		lbs/acre	\$/lb		\$ per acre
crested wheatgrass		3.0	3.00		9.00
squirreltail		2.0	35.00		70.00
Indian Ricegrass		2.0	6.00		12.00
Yellow Sweetclover		0.5	2.00		1.00
Black Sage		0.1	100.00		10.00
Palmer's Penstemon		1.0	60.00		60.00
Four-wing Saltbrush		1.0	12.00		12.00
Shadscale		1.0	18.00		18.00
		10.6			192.00
Seed Costs from Granite Seed, Lehi, UT, (8/14/06)					



RECLAMATION COST SUMMARY - PHASE 1								
9.3	Facilities Demolition & Disposal						0	
9.4	Regrading & Recontouring						4962	
9.5	Ripping						53488	
9.6	Drainage Stabilization and Restoration				N/A			
9.7	Topsoil Replacement						118455	
9.8	Seedbed Preparation						106785	
9.9	Revegetation						194898	
9.10	Pit Highwall Safety Berms & Fences				N/A			
9.11	Miscellaneous - Mobilization & Demobilization						8000	
9.12	<b>RECLAMATION TOTAL</b>						486588	
9.13	Reclamation Supervision(10% of Reclamation Total)						48659	
9.14	<b>SUBTOTAL (1)</b>						535246	
9.15	Contingency (10%)						53525	
9.16	<b>SUBTOTAL (2)</b>						588771	
9.17	Escalation (for 5 years at 1.6% per year)						48632	
9.18	<b>GRAND TOTAL</b>						<b>\$ 637,404</b>	
	<b>GRAND TOTAL ROUNDED</b>						<b>\$ 637,400</b>	



<b>9.3</b>	<b>Facilities Demolition &amp; Disposal</b>									
		Metal Structures								
				unit cost					Cost	
		volume(cuft)		(\$/cuft)						
		0		0.26					0	
				Means 2006 (02220-110-0012)						
		Frame and Tin Structures								
				unit cost						
		volume(cuft)		(\$/cuft)						
		0		0.28					0	
				Means 2006 (02220-110-0100)						
		Pads								
		6" area (sq ft)		\$/sq ft						
		0		5.60					0	
				Means 2006 (02220-130-0420)						
		4" area (sq ft)		\$/sq ft						
		0		4.02					0	
				Means 2006 (02220-130-0280)						
				TOTAL FACILITIES AND DISPOSAL					0	
<b>9.4</b>	<b>Regrading &amp; Recontouring</b>									
		Dump Top Rounding								
		length (ft)	area(sq ft)	volume(cuyd)	production lcy/hr	total hrs	equip \$/hr	labor \$/hr		
		10867	38	15294	996	15.4	267.73	55.40	4962	
				refer to Dump Top Rounding						
				schematic for area cross						
				section						
<b>9.5</b>	<b>Ripping</b>									
					production		equip	labor		
			area (ac)		acres/hr	total hrs	\$/hr	\$/hr		
			124.9		0.75	165.5	267.73	55.40	53488	
				NOTE: ALL RIPPING ASSUMED DEEP						
<b>9.6</b>	<b>Drainage Stabilization and Restoration</b>					N/A				
<b>9.7</b>	<b>Topsoil Replacement</b>									
		importing	volume		production		equip	labor		
		w/ scraper	(cuyd)		lcy/hr	total hrs	\$/hr	\$/hr		
			60806		234	259.6	324.85	55.40	98728	
		spreading	volume		production		equip	labor		
		by dozer	(cuyd)		lcy/hr	total hrs	\$/hr	\$/hr		
			60806		996	61.1	267.73	55.40	19727	
					TOTAL TOPSOIL REPLACEMENT				118455	
<b>9.8</b>	<b>Seedbed Preparation</b>									
					fertilizing	manure				
			area (ac)		\$/ac	\$/ac				
			237.3		100	350			106785	
					DOGM rate	DOGM rate				



<b>9.9</b>	<b>Revegetation</b>								
				application	seed cost				
	seed	area (ac)		\$/ac	\$/ac				
		237.3		240	192.00				102513.6
				DOGM rate	quote				
					production		equip	labor	
	dimpling	area (ac)			ac/hr	total hrs	\$/hr	\$/hr	
		237.3			0.83	285.9	267.73	55.40	92384
					TOTAL REVEGETATION				194898
<b>9.10</b>	<b>Pit Highwall Safety Berms</b>								
		length (ft)		NOTE: Safety berms are installed during initial phase of					
		19650		of mining of a given pit. Berm construction is an					
				operational cost and not a reclamation cost.					
				The safety berms are a MSHA requirement					
<b>9.11</b>	<b>Miscellaneous - Mob/Demob</b>								
		Equip Mob/Demob							
		D9 dozer		2000					
		631 scraper		2000					
		backhoe		2000					
		(1.25 cy loader bucket)							
		992 loader		2000					
				TOTAL MOB/DEMOB					8000
				TOTAL MISCELLANEOUS					8000



9.3	<b>Facilities Demolition &amp; Disposal</b>							
	Metal structures							
		area(sqft)	height (ft)	volume(cuft)	foundation			
	Maint. Shop	2400	16	38400	concrete			
	Welding Shop	1152	10	11520	concrete			
	Sample storage	880	10	8800	concrete			
		SUBTOTAL		0	cu ft			
	Frame & tin structures							
	Shop addition	1078	14	15092	concrete			
	Pump house	160	8	1280	concrete			
	Prod. office	500	8	4000	blocks			
	Engr. Office	1012	8	8096	blocks			
	Lunch room	504	8	4032	blocks			
	Core shed #1	240	8	1920	blocks			
	Core shed #2	240	8	1920	blocks			
	Bunk house	672	8	5376	blocks			
	Guard qtrs	718	8	5744	blocks			
	Generator shed	180	8	1440	concrete			
		SUBTOTAL		0	cu ft			
	Pads							
	6" depth pads			4" depth pads				
	Tank farm	1315		Welding shop	1152			
	generator pad	419		Sample bldg	880			
	Maint. Shop	2400						
	Total sqft 6"pads	0		Total sqft 4"pads	0			
9.4	<b>Regrading &amp; Recontouring</b>							
	(I.e. Dump Top Rounding)							
		Pit	Dump	Linear feet				
	Property	Designation	Designation	to be rounded				
	Fluro	1	n/a	481				
	Fluro	2	n/a	296				
	Fluro	3	n/a	212				
	Rainbow	1	1	3495				
	Rainbow	1	2	559				
	Rainbow	2	2	1424				
	Rainbow	3	1	1211				
	South Wind			3189				
	TOTAL LENGTH (FT) ROUNDING			10867				
9.5	<b>Ripping</b>							
	Shallow Surface Ripping (Topsoil Stockpiles)							
	Property			acres				
	Fluro			0.2				
	Rainbow			0.6				
	South Wind			0.7				
	TOTAL ACRES SHALLOW RIPPING			1.5				
	Deep Surface Ripping (Ore pads,roads,dumps, backfills mine camp)							



Property	Ore pad(ac)	roads (ac)	dumps(ac)	backfills(ac)	other (ac)		
Fluro 1	7.5	5.4		6.1			
Fluro 2				1.1			
Fluro 3				2.3			
Rainbow 1	12.6	9.8	14.6				
Rainbow 2			7.6				
Rainbow 3			29.7				
South Wind	2.5	4.7	10.9				
Mine Camp							
TOTAL	22.6	19.9	62.8	9.5	8.6		
				8.6			
TOTAL ACRES DEEP RIPPING							
TOTAL ACRES ALL RIPPING							
123.4							
124.9							
9.6 Drainage Stabilization and Restoration							
9.7 Topsoil Replacement							
		one way		one way		one way	
Mine	Dump Backfill& outslope (yds)	haul distance (ft)	Ore Stockpile (ac)	haul distance (yds)	haul distance (ft)	Total (yds)	haul distance (ft)
Fluro 1/2/3	16828	900	7.5	3025	5400		
Rainbow 1	8072	1650	12.6	5082	2700		32.2
Rainbow 2	8266	2250					16.8
Rainbow 3	9320	1650					24.3
South Wind	9205	1050	2.5	1008	750		21.7
							17.4
TOTALS	51691	1395	22.6	9115	3380	60806	1693
NOTE: ALL HAUL DISTANCES ARE A WEIGHTED AVERAGE							
TOTAL ACRES TO BE REVEGETATED							
Dump Backfill& outslope (ac)							
112.4							
Ore pads stockpiles							
124.9							
TOTAL							
237.3							
9.10 Pit Highwall Safety Berms							
Mine	in (map)	actual length (ft)					
Fluro 1/2/3	35	10500					
Rainbow 1/2/3	22	6600					
South Wind	8.5	2550					
Total length Safety Berm		19650					
9.11 Miscellaneous - Landfill Reclamation							
Land fill = 17 acres							
Item	area(ac)	height (ft)	volume (cu yd)				
grading	7.7	0.5	6211				
waste rock	7.7	5	62113				
top soil	7.7	0.5	6211				



<b>DOZING</b>							
Dump Top Rounding & Topsoil Spreading			Ripping			Seed Setting with D-9 pulling Dippler	
<b>D-9</b>	70' Push		<b>D-9</b>			<b>D-9</b>	
Production			Production				
Dozing distance	70		Ripper width (ft)	10.0		Dippler width (ft)	11.0
Maximum production(lcy/hr)	1600		Ripper penetration (ft)	2		speed (mi/hr)	1.00
			speed (mi/hr)	1.00			
Correction Factors			Maximum production(ac/hr)		1.21	Maximum production(ac/hr)	1.33
Operator	0.75		Correction Factors			Correction Factors	
efficiency (50 min/hr)	0.83		Operator		0.75	Operator	
			efficiency (50 min/hr)		0.83	efficiency (50 min/hr)	
Total Correction Factor	0.623		Total Correction Factor		0.623	Total Correction Factor	
			Corrected Production		0.75	Corrected Production	
Corrected Production			(lcy/hr)		996	(ac/hr)	
			Corrected Production		0.75	Corrected Production	
			(ac/hr)			(ac/hr)	

<b>SCRAPERS</b>		
Top Soil Replacement		
Cat 631		
Capacity (cu yd)		29
Average Haul Distance		1700
Cycle Time		
Loading time (min)		0.9
Spreading time (min)		0.7
Loaded Haul time (min)	4% grade	1.3
Empty Haul time (min)	4% grade	0.9
Cycle Time (min)		3.7
Cycles per Hour		16.2
Production Rate (lcy/hr)		470
Correction Factors		
Operator		0.75
Job Efficiency(50 min/hr)		0.83
Load Factor		0.8
Total Correction Factor		0.50
Corrected production rate(cy/hr)		234

<b>SCRAPERS</b>		
Waste Rock Cap for Landfill		
Cat 631		
Capacity (cu yd)		29
Average Haul Distance		1300
Cycle Time		
Loading time (min)		0.9
Spreading time (min)		0.7
Loaded Haul time (min)	4% grade	1.0
Empty Haul time (min)	4% grade	0.7
Cycle Time (min)		3.3
Cycles per Hour		18
Production Rate (lcy/hr)		527
Correction Factors		
Operator		0.75
Job Efficiency(50 min/hr)		0.83
Load Factor		0.8
Total Correction Factor		0.50
Corrected production rate(cy/hr)		263







## **9.0 SURETY**

BRI proposes to provide reclamation surety for the reclamation liability that currently remains from past operations and for the disturbances and resultant liabilities anticipated to be incurred during Phase I of LMU development.

### **9.1 Baseline Reclamation Liability**

BRI has carefully mapped existing disturbances using 1976, 1986 and 2001 aerial photographs and topographic mapping to determine the advancement of disturbances and their aerial extent. In turn, the disturbances have been classified by disturbance: pits, waste rock dumps and pit backfills, ore stockpiles, and ancillary facilities.

The current status of reclamation at the mine is summarized on the map entitled Disturbed Acres Status of Properties Existing & Released (Plate 12). Five categories are shown on the map:

- pit, dump, ore pad, mine camp and other disturbances subject to reclamation liability;
- pit and dump disturbances variances in the 1988 revision;
- pit, dump, backfill and other disturbances released or variances between 1988 and 2000;
- pit disturbances requested for variance in the updated revision;
- reclamation treatment test plots.

The disturbed areas for which there is no further reclamation liability are the following: Taurus pit and dump, Sigma Emma pit and dump, Roadside 1 and 2 pits and associated dumps, the Fluro pit and dump, the former Anaconda pit and dump located in the vicinity of the Monitor deposit, the Monitor dump, the Rainbow pit (part) and dump, the Anaconda pit and dump located adjacent to Rainbow pit, and the Blue Chalk dumps and pit backfills. Table 4.2-1 lists the dates that these pits and dumps were opened and closed. These disturbed areas have either been released from surety requirements after the Division had determined that adequate revegetation success had



been achieved or were granted a variance at the time the initial MRP was approved in 1988.

Table 9.1-1 summarizes the disturbed areas having current outstanding reclamation liabilities at the Topaz mine along with their areas (acreages) and proposed disposition.

**Table 9.1-1 Current (end 2004) Outstanding Unreclaimed Areas**

<b>Disturbance Area Designation</b>	<b>Disturbed Area (acres)</b>	<b>Disposition</b>	<b>Anticipated Timing</b>
Monitor Pit Backfill Surface	27.2	Rip, topsoil, revegetate	Beginning in Phase I
Monitor Ore Pad	13.4	Rip, topsoil, revegetate	End of Monitor pit life
Dust Suppression water assembly (southwest of Monitor)	1.9	Rip, revegetate	Post Phase I
Roadside 2 Pit Backfill Surface	1.0	topsoil, revegetate	Begins in Phase I
Roadside/Fluro 3 Pit Backfill Surface	16.9	topsoil, revegetate	Begins in Phase I
Landfill	7.7	Cover, topsoil, revegetate	End of mine life
Mine Camp	8.6	Rip/scarify, revegetate	End of mine life
Laydown area on Fluro dump	4.6	Rip/scarify, topsoil, revegetate	End of mine life
Rainbow Pit 2 borrow, ore pad, ramps	21.6	Regrade, rip, topsoil, revegetate	Post Phase I
Blue Chalk North Pits	23.3	Variance from Rule <b>R647-4-111.7, 12, &amp; 13</b> requested	Not scheduled
Blue Chalk South Pit	8.4	Variance from Rule <b>R647-4-111.7, 12, &amp; 13</b> requested	Not scheduled
Section 16 North 1 Pit	25.7	Variance from Rule <b>R647-4-111.7, 12, &amp; 13</b> requested	Not scheduled
Section 16 North 1 Dump	26.4	Rip/scarify, topsoil, revegetate	Post Phase I
Total Current Disturbed Area	195.7		

As part of this revised MRP, BRI is seeking a variance for reclamation of the Blue Chalk North, Blue Chalk South, and Section 16 North No. 1 open pits. These pits must remain open, as they are today, to allow access to the Blue Chalk North and South and Section 16 ore bodies in the future. These open pits will be expanded in future phases of Topaz mine operations and backfill opportunities will be determined in future phase amendments.



The surety amounts for the currently disturbed areas subject to reclamation have been calculated using the same methods used for new disturbances to be created in the initial LMUs in the first phase of mining proposed in this plan. In this way the allocation of existing surety, whether for disturbances that are bonded or for formerly proposed developments that have not yet begun, is not relevant. Rather, the existing surety amount would be adjusted as necessary to provide sufficient surety for the currently outstanding reclamation liability as well as the reclamation liability anticipated to be accrued during the development and mining of the Phase I LMUs.

The reclamation cost estimate for the existing disturbances is provided in Appendix 7 and the reclamation cost estimate for the proposed disturbances under the Phase I LMU is in Appendix 8.

## **9.2 Methodology**

This paragraph will describe how the Reclamation Plan Cost Estimate was accomplished. Separate estimates for reclamation of existing and proposed Phase I LMU disturbances, comprised of five pages each (or worksheets in MS Excel), are provided in Appendices 7 and 8. The description below explains where data originated and how it was utilized in the various calculations. The following subsections pertain to the reclamation cost estimates for the existing and proposed Phase I LMU disturbances.

### **9.2.1 Rates**

This worksheet tabulates first the Equipment Hourly Rates, which include all the operating, ownership, and overhead costs extracted from the Rental Rate Blue Book, last half 2006. The Labor Hourly Rates were obtained from Means Heavy Construction Cost Data, 2006. Finally, the Revegetation Seed Cost per Acre table was derived using the revegetation species and seed application rates in Table 7.11-1. The unit seed price was obtained from Granite Seed Company, Lehi, UT on 8/14/06.

### **9.2.2 Equipment**



This worksheet tabulates the calculated production rates for each of the unit operations (i.e. dump top rounding with a dozer, ripping with a dozer, seed setting with a dozer pulling the dimpler, and a scraper replacing topsoil). Dozing distance for the dump top rounding was assumed to be 70 feet per BRI. The average haul distance used for the scraper topsoil replacement productivity originated in the Quantities sheet to be explained in the next paragraph. All other factors on this worksheet were obtained from the Caterpillar Performance Handbook, 36<sup>th</sup> Edition, April 2006.

### **9.2.3 Quantities**

This worksheet lists and summarizes the applicable quantities needed for the ensuing cost calculations by subsection number (e.g., 9.3 Facilities Demolition, 9.4 Regrading and Recontouring, etc). BRI provided building dimensions and linear feet of dump margin for dump top rounding. All other quantities were listed in Section 7.0 or measured from the associated sets of drawings.

### **9.2.4 Costs**

This sheet details by paragraph how the costs are calculated. Generally the number of units (e.g., cubic yards, etc.), the productivity (e.g., cubic yards/ hr), the equipment and labor cost per hour are combined to determine the cost for a given item. In most cases, items used in this sheet are linked to the quantities, equipment, and rates sheets. When this was not the case, a reference was listed from Means Heavy Construction Cost Data, 2006 by line number; or the DOGM rate sheet. The most recent available DOGM rate sheet is dated April 18, 2005.

### **9.2.5 Cost Summary**

This sheet lists the total cost for each reclamation component which add up to the "Reclamation Total". The standard DOGM add-ons are then determined and listed, after which the "Grand Total" for the estimate is summed.

## **9.3 Facilities Demolition & Disposal**



The plans for facilities demolition and disposal of the demolition debris are described in Section 7.2. The reclamation cost estimate for this component is included with the costs for existing disturbances in Appendix 7.

#### **9.4 Regrading & Recontouring**

Regrading and contouring of waste rock dumps and pit backfills, ancillary facilities sites (e.g., mine camp,), ore stockpile sites, and the landfill are discussed in Section 7.4.

#### **9.5 Ripping**

Ripping of roads is described in Section 7.3. Ripping of other hardened surfaces such as dump surfaces and ore stockpile sites is discussed in Section 7.4.

#### **9.6 Drainage Stabilization & Restoration**

Drainage and sediment control will not be required as part of Phase I reclamation. Refer to section 7.5 and also sections 3.6, 4.8, 5.7, and 6.4.

#### **9.7 Soil Replacement**

Topsoil replacement methods are described in section 7.7.

#### **9.8 Seedbed Preparation**

Seedbed preparation methods are also described in Section 7.8.

#### **9.9 Revegetation**

Revegetation methods are described in Section 7.10.

#### **9.10 Pit Highwall Safety Berms & Fences**

Pit highwall safety berms are constructed prior to beginning mining of each open pit or pit expansion; therefore they are not reclamation costs. No fences are proposed as part of the reclamation plan.

#### **9.11 Miscellaneous**

Miscellaneous costs consist of mobilization and demobilization costs, which are included with the cost estimate for Phase I LMU reclamation (Appendix 8), and landfill



reclamation costs, which are included in the Existing facilities reclamation cost (Appendix 7). For reclamation cost estimating purposes it has been assumed that the existing and proposed disturbances would be carried out as part of a single operation; therefore, mobilization and demobilization costs would not be incurred separately for reclamation of existing and proposed disturbances.

#### **9.12 Construction Supervision**

Supervision of reclamation construction is estimated at 10 percent of the Reclamation Total cost for both existing and proposed disturbances.

#### **9.13 Contingency and Escalation**

A cost contingency factor of 10 percent of the sum of the Reclamation Total cost plus construction supervision was included with the cost estimates for both existing and proposed disturbances. A cost escalation factor of 1.6 percent per year, compounded annually for 5 years, was added to the cost estimates for reclamation of both existing and proposed disturbances.

#### **9.14 Summary of Reclamation Costs**

The reclamation cost estimates for existing and proposed Phase I LMU disturbances, including construction supervision, contingency, and escalation are \$724,600 and \$637,400, respectively.